

Y10 Unit 4 Overview-**Presenting data, solving inequalities and congruency**

Test Date: **WB 22nd June, 2020.**

Target grade for tests:

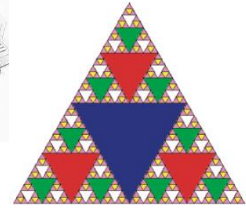
You will learn about:

- Presenting data
- Simultaneous equations
- Triangles and congruency

You will be able to:

- Interpret and construct tables, charts and diagrams, including tables and line graphs for time series data and know their appropriate use
- Draw estimated lines of best fit; make predictions
- Know correlation does not indicate causation; interpolate and extrapolate apparent trends whilst knowing the dangers of so doing
- Solve simultaneous equations
- Use graphs to solve equations
- Solve problems involving simultaneous equations
- Understand and use the concepts and vocabulary of inequalities
- Solve linear inequalities in one variable and represent the solution set on a number line
- Use the basic congruence criteria for triangles (SSS, SAS, ASA, RHS)
- Apply angle facts, triangle congruence, similarity and properties of quadrilaterals to conjecture and derive results about angles and sides, including Pythagoras' Theorem and the fact that the base angles of an isosceles triangle are equal, and use known results to obtain simple proofs

$$\begin{aligned} (1) \quad & 8x + 2y = 46 \\ (2) \quad & 7x + 3y = 47 \end{aligned}$$



Lesson Overview

PRESENTATION OF DATA

- Construct graphs of time series
- Interpret graphs of time series
- Construct and interpret compound bar charts
- Interpret a wider range of non-standard graphs and charts
- Understand that correlation does not indicate causation
- Interpret a scatter diagram using understanding of correlation
- Construct a line of best fit on a scatter diagram
- Use a line of best fit to estimate values
- Know when it is appropriate to use a line of best fit to estimate values

SOLVING EQUATIONS

- Understand that there are an infinite number of solutions to the equation $ax + by = c$ ($a \neq 0$, $b \neq 0$)
- Understand the concept of simultaneous equations
- Understand the concept of solving simultaneous equations by elimination*
- Target a variable to eliminate
- Decide if multiplication of one equation is required
- Decide whether addition or subtraction of equations is required
- Add or subtract pairs of equations to eliminate a variable
- Find the value of one variable in a pair of simple simultaneous equations
- Find the value of the second variable in a pair of simple simultaneous equations
- Solve two linear simultaneous equations in two variables in very simple cases (no multiplication required)
- Solve two linear simultaneous equations in two variables in simple cases (multiplication of both equations)

Key Words

Refer to

<http://studymaths.co.uk/glossary.php>
for definitions of the key words

Categorical data, Discrete data
Continuous data, Grouped data
Axis, axes
Time series
Compound bar chart
Scatter graph (scatter diagram, scattergram, scatter plot)
Bivariate data
(Linear) Correlation
Positive correlation, Negative correlation
Line of best fit
Interpolate
Extrapolate
Trend

Notation

Correct use of inequality symbols when labelling groups in a frequency table

Equation
Simultaneous equation
Variable
Manipulate
Eliminate
Solve
Derive
Interpret

- Derive and solve two simultaneous equations
- Interpret the solution to a pair of simultaneous equations
- Introduce to solving graphically (links to previous unit-plotting straight line graphs)

CONJECTURING

- Know the criteria for triangles to be congruent (SSS, SAS, ASA, RHS)
- Identify congruent triangles
- Use known facts to form conjectures about lines and angles in geometrical situations
- Use known facts to derive further information in geometrical situations
- Test conjectures using known facts
- Know the structure of a simple mathematical proof
- Use known facts to create simple proofs
- Explain why the base angles in an isosceles triangle must be equal
- Explain the connections between Pythagorean triples

Congruent, congruence
 Similar (shapes), similarity
 Hypotenuse
 Conjecture
 Derive
 Prove, proof
 Counterexample

Notation

Notation for equal lengths and parallel lines
 SSS, SAS, ASA, RHS
 The 'implies that' symbol (\Rightarrow)

Suggested reading or support/ challenge available

Support is available from a Maths teacher in 'MORALE' in M1 daily from 1:30pm -1:45pm

Pixl Maths App

login: PY2415
 username: surname followed by first initial
 password: first name

www.hegartymaths.com

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Cross curricular

SMSC:

- 1.1 Exploring, understanding and respecting cultural diversity e.g. exploration of different methods of calculation.
- 3.1 Developing personal qualities and using social skills (regular paired/ group work communication).
- 3.2 Participating, cooperating and resolving conflicts (paired/group activities).
- 4.2 Experiencing fascination, awe and wonder of mathematics.
- 4.4 Using imagination and creativity in learning.

Literacy:

Verbal communication of understanding using key words in the correct context. Development of written communication of methods and strategies to problem solve.

NAC:

Science – Draw graphs modelling real life situations. Draw and interpret bar graphs. Draw and interpret scatter diagrams. Understand simple correlation. Draw a line of best fit on a scatter diagram. Select and use appropriate scales for axes.

Geography – Draw graphs modelling real life situations. Draw and interpret bar graphs. Draw and interpret scatter diagrams. Understand simple correlation. Draw a line of best fit on a scatter diagram. Select and use appropriate scales for axes.

Business – Draw and interpret bar graphs. Select and use appropriate scales for axes.

English – Draw and interpret bar graphs.

MFL – Draw and interpret bar graphs.

Creative Arts – Draw and interpret bar graphs.

Technology- Draw and interpret bar graphs.

Research	Note-making	Group work & discussion	Memorisation	Precision & accuracy	Independence	Reflection

